France.—M. Lippmann, member of the Institute and professor at the Sorbonne.

Germany.—Dr. Warburg, president of the Imperial Physico-technical Institute; Dr. Jaeger, member of the Imperial Physico-technical Institute; Dr. Lindeck, member of the Imperial Physico-technical Institute.

Great Britain.—The Right Hon. Lord Rayleigh, president of the Royal Society; Prof. J. J. Thomson, Cambridge; Sir John Gavey, C.B.; Dr. R. T. Glazebrook, director of the National Physical Laboratory; Major W. A. J. O'Meara, C.M.G., Engineer-in-Chief, General Post Office; Mr. A. P. Trotter, Electrical Adviser to the Board of Trade.

Guatemala.—Dr. Francisco de Arce, diplomatic representative, London and Paris.

Italy.—Prof. Antonio Roiti, of Florence.

Japan.—Mr. Osuke Asano, doctor of engineering, official expert of the Department of Communication, Tokyo; Mr. Shigeru Kondo, official expert of the Department of Communication, Tokyo.

Mexico.—Don Alfonso Castello; Don Jose Maria Perez.

Netherlands.—Dr. H. Haga, professor at the University of Groningen.

Paraguay.—M. Maximo Croskey.

Spain.—Don Jose Maria Madariaga, professor of electricity and physics at the School of Mines, Madrid.

Switzerland.—Dr. F. Weber, professor at the Swiss Polytechnic School at Zürich; Dr. Pierre Chappuis, of Bale; Dr. J. Laudry, professor of electricity in the School of Engineers, Lausanne.

British Colonies: Australia.—Mr. Cecil Darley; Prof. Threlfall.

Canada.—Mr. Ormond Higman, chief electrical engineer, Inland Revenue, Ottawa.

Crown Colonies.—Major P. Cardew, electrical adviser.

India.—Mr. M. G. Simpson, electrician of the Indian Telegraph Department.

MR. BENNETT H. BROUGH.

ALL members of the Iron and Steel Institute, and, in fact, all those engaged either directly or indirectly in the manufacture of steel, were shocked by the sudden and unexpected death of Mr. Bennett Brough, the general secretary of the Iron and Steel Institute at Newcastle-on-Tyne, on Saturday last, after an operation for peritonitis. He had been attending the autumn meeting of the Institute in Middlesbrough, and up to Thursday appeared to be in normal health, and was taking his usual active part in making the meeting a success.

Mr. Brough was born in 1860, and was educated at the City of London School, and after graduating at the Royal School of Mines was for some time a student at the Mining School at Clausthal. Some time after the completion of his student career at Clausthal, he was appointed instructor in mine surveying at the Royal School of Mines, and only resigned on his appointment as secretary to the Iron and Steel Institute in 1893.

As early as 1885 he acted as a juror at the Inventions Exhibition, was a member of the Mining and Metallurgical Committees of the British Section of the Paris Exhibition of 1889, and of the St. Louis Exhibition of 1904, and the success of the Iron and Steel Section at the Franco-British Exhibition is in no small degree due to his great organising ability and untiring efforts.

Mr. Brough was not only a sound technical man, but a brilliant linguist, and a man of very wide culture and extensive travel. His well-known book on mine surveying and numerous contributions to the various technical and learned societies are known all over the world, and he was an accepted authority on mining matters.

He acted as examiner in mining at the Royal School of Mines, the Glasgow University, and the University of Wales, and he was a member of the council of the Institution of Mining Engineers; he served on the council of the Institute of Chemistry and the Chemical Society, and was also a Knight of the Swedish Order of Wasa.

As general secretary of the Iron and Steel Institute there were few men more widely known in the metallurgical world, and none more universally esteemed and respected. He was equally accessible to the youngest as to the oldest member of the institute, extending the same courtesy and consideration to all. He was a man of few words, but many kindly deeds, and not only those who were privileged to number him amongst their friends, but all who knew him, have suffered an irreparable loss.

NOTES.

A SPELL of exceptionally brilliant and hot weather for so late in the year occurred over the whole of the British Islands during the last three days of September and the first four days of October, and in nearly all parts of the country previous records fail to show any shade temperatures as high for the corresponding period. At Greenwich the maximum readings exceeded 70° each day, and on the six days from September 29 to October 4 it was 75° or above, the absolutely highest temperature being 79°·9, on September 30. An examination of the Greenwich records from 1841 shows a temperature of 79°·2, on October 4, 1886, but there is no other reading higher than 78° so late in the season. At Nottingham 78° occurred on October 3, whilst the previous highest temperature during the month in the last thirty-five years is 75°, in 1895. At Bath 77° was registered on October 1 and 2, and the highest previous record for the month is 73°, in 1873. At Shields the reading was 77° on October 3, and the previous highest reading in October is 69°, in 1898. All previous records were also broken by 77° at Aberdeen, 76° at Jersey, Nairn, and Valencia, 75° at Holyhead, and 73° at Leith, between October 1 and 4. A feature of especial interest during the hot spell was the exceptionally warm nights, the thermometer commonly not falling below 60°. The Weekly Weather Summary for the period ending October 3, issued by the Meteorological Office, shows that the mean temperature was more than 11° in excess of the average in the north-east and north-west of England and in the Midland counties, whilst the sheltered thermometer registered 80° in all these districts. Much fog or mist occurred at night, and the air throughout the hot spell was exceedingly humid, the ground remaining damp all day where screened from the sun's rays. The primary cause of the hot weather was a quiet drift of southerly air from off the heated land in Spain and France, due to the prevalence of a region of high barometer readings over Germany. At Rochefort and Biarritz the sheltered thermometer registered 86° on October 2.

WE learn from the observatory department of the National Physical Laboratory that highly disturbed magnetic conditions prevailed there on September 29–30. A magnetic storm commenced suddenly about 1.32 a.m. on September 29. After 7.30 a.m. the curves were only slightly disturbed during a period of fully six hours, when fresh disturbance appeared. Considering the length of the interval, it was probably a case of two distinct magnetic storms. On this view, the first storm lasted about six hours, during which time the declination showed a range of 54′, while the ranges of horizontal force and vertical force were respectively about 225γ and 160γ ($1\gamma=0{\cdot}00001$ C.G.S.). The second storm, commencing suddenly about 1.45 p.m. on September 29, continued until 7 a.m. or

8 a.m. on September 30. During it the declination range was about 73′, while the ranges in horizontal and vertical force were each approximately 330 γ. On September 29 there was a remarkably fine oscillation in declination commencing at 6 p.m. In the course of eleven minutes the magnet swung 39′ to the west, with a return movement of 46′ to the east. In the course of this day, both in the morning and afternoon, there were a number of smaller but very rapid oscillations of the type usually associated with aurora. It is thus of interest to note that the Daily Weather Report of September 30 announces aurora as having been observed in various parts of Britain on the previous day, whilst the newspapers report the occurrence of unusually vivid aurora in the United States. It will be remembered that a large magnetic storm was recorded at Kew on September 11–12; it is unusual for disturbances so large as those of September 12 and 30 to occur in such rapid succession.

THE Harveian oration of the Royal College of Physicians of London will be delivered by Dr. J. A. Ormerod on Monday, October 19, at 4 p.m.

THE Italian Society of Sciences (Accademia dei XL) has awarded its biennial mathematical prize to M. Giuseppe Picciati, of the University of Padua, for his series of mathematical works.

PROF. E. C. PICKERING, of Harvard University, has been elected president for the ensuing year of the Astronomical and Astrophysical Society of America, and Prof. W. J. Hussey, of the University of Michigan, the secretary of the society.

ON October 6, at Le Mans, Mr. Wilbur Wright accomplished a flight of 1h. 4m. 26s. in duration, carrying a passenger. The nearest approach to this flight with a passenger was Mr. Wright's record of thirty-five miles in 55m. 35·6s. on October 3.

A CONFERENCE of members of the Museums' Association and others interested will be held at Rochdale on Thursday, November 5, for the purpose of discussing subjects of interest to those concerned in the work of museums, art galleries, and kindred institutions.

THE death of M. Alphonse Boistel, at the age of seventy-one years, is announced. M. Boistel was known as the author of a "Nouvelle Flore des Lichens," and as treasurer, and subsequently president, of the Geological Society of France. Science was a leisure-hour pursuit with M. Boistel, who for forty years was professor of commercial law in the University of Paris.

AT the meeting of the German Meteorological Society in Hamburg, to celebrate its twenty-fifth anniversary, the following were elected honorary members:—Dr. W. N. Shaw, F.R.S., director of the Meteorological Office, London; M. A. Angot, director of the Bureau Central Météorologique, Paris; M. L. Teisserenc de Bort, director of the Observatoire de Météorologie dynamique, Trappes (France); and Prof. A. L. Rotch, director of Blue Hill Meteorological Observatory, U.S.A.

ON Saturday, October 10, the Essex Field Club will hold a conference and demonstration at the Franco-British Exhibition. The main object of the meeting will be to demonstrate the value of some of the exhibits as illustrations of the methods which may be employed in promoting and encouraging nature-study in schools, and to discuss the best mode of utilising local museums as centres and standards of reference in such instruction. All interested in these subjects are invited to attend. Applications for programmes and other information should be made to the hon. secretary, Mr. W. Cole, Buckhurst Hill, Essex.

THE death is announced, in his sixty-ninth year, of Dr. Francis Huntington Snow, who took a prominent part in scientific teaching in the University of Kansas from its establishment in 1866. He was Chancellor of that University from 1890 to 1901, and after his retirement from that post continued to hold the chair of systematic entomology. In recognition of his services the Kansas Legislature built several years ago the Snow Hall, to hold his valuable collection of 22,000 insects, made during twenty-six expeditions in Kansas, Colorado, New Mexico, Texas, and Arizona. American farmers owe much to his experiments in the artificial application of fungus diseases to the destruction of chinch bugs, especially in the wheat fields.

THE latest development of the policy of the Forest Service at Washington is the projected establishment in the west of a number of forest experiment stations, which, it is anticipated, will do for American forestry what the agricultural experiment stations have done for the country's farms. The first station of the series has been established in the Coconino national forest, with headquarters at Flagstaff, Arizona. Here special attention will be paid to a study of the reproduction of the western yellow pine and the causes of its success and failure. One of the most important functions of these stations will be the maintenance of model forests, typical of the region, as object-lessons for professional foresters, lumbermen, &c.

WRITING to the *Times* of October 1, Mr. R. Burnard, hon. secretary, Dartmoor Preservation Association, states that the most serious destruction of antiquities, and one for which, apparently, there can be no excuse, has just been reported to him. It appears that the War Office recently acquired a large tract of country at Willsworthy, near Lydford, for training purposes, and on this stands White Hill, an eminence of nearly 1300 feet, recently crowned by thirteen tumuli; these have been swept away, in order, so it appears, that a flagstaff may be set up. Mr. Burnard adds:—"The ignorance of a country road-mender helping himself to what is handiest in the way of stone may be excused, but this last destruction is at present inexplicable, for assurances were given when the property was acquired that all the antiquities would be respected as far as the exigencies of the service would permit."

A BRILLIANT assembly, organised by the committee for the erection of a monument to the late Prof. Marcelin Berthelot, the founder of synthetic chemistry and of thermochemistry, met at the Sorbonne on Sunday night. M. Fallières, President of the French Republic, was present, and also M. Clemenceau, the Prime Minister, and M. Doumergue, Minister of Education. We learn from the Times that in an eulogy upon the great *savant* M. Raymond Poincaré said:—"After his death there was found on his table, indicative of his last thoughts, a memoir on the alkaline compounds in vegetables, an old Arab manuscript on alchemy, which he had only just managed to obtain from the Mosque of Fez, and an address to the French of the Argentine Republic. He had thus, for the last time, united in his final preoccupations truth and the fatherland." M. Fallières also spoke eloquently of Berthelot, who, he remarked, remained to the last one of the noblest apostles of science, of independent thought, of justice, and of truth.

DR. AND MRS. BULLOCK WORKMAN, accompanied by Dr. C. Calciati and Dr. M. Koncza, surveyors, have carried out successfully a detailed survey of the Hispar glacier in Hunza-Nagar. We learn from the *Pioneer Mail* that, after remaining five weeks on the Hispar, camping much of the time on snow, at altitudes of from 16,000 feet to 19,500 feet, Dr. and Mrs. Bullock Workman, with guides and a caravan of Nagar coolies, crossed the Hispar pass and descended the Biafo glacier—thirty miles long—reaching Askole, Baltistan, on August 26. Although the chief objects of the expedition were glacial study and mapping, several new peaks and snow passes were climbed, the most notable being a very steep and difficult snow peak of about 22,000 feet, situated some distance to the north of the Hispar pass, on the watershed of the Hispar and Biafo glaciers, overlooking the solitudes of Snow Lake at the head of the Biafo glacier. This is the second traverse by Europeans of these two glaciers, the first having been made by Sir Martin Conway in 1892.

MR. J. T. CART, whose death we announce with regret, entered the School of the Pharmaceutical Society in October, 1902, as Bell scholar, was appointed demonstrator in chemistry in October, 1903, and demonstrator in pharmaceutics in April, 1904, a post which he held until he took up an appointment with the firm of Messrs. Hopkin and Williams in July, 1905. There he gained additional experience in analytical and manufacturing chemistry under the supervision of Mr. Edmund White, leaving in 1906 for Newcastle-on-Tyne, where he was appointed chemist to Messrs. C. A. Parsons and Co. to carry on chemical engineering research work, and to deal with such chemical questions as arise in the carrying on of engineering and electrical business generally. His work while at Newcastle threw him much into contact with Mr. Charles A. Parsons and others, who held him in the highest regard. To all who had the privilege of his acquaintance and friendship, his sudden and untimely death has come as a great shock and sorrow. Mr. Cart was a B.Sc. of London University, an Associate of the Institute of Chemistry, and a member of the Northern Scientific Club.

VOL. xiii. (pp. 547–752) of the Transactions of the South African Philosophical Society is devoted to the concluding portion of the descriptive catalogue of the Coleoptera of South Africa, and deals mainly with the family Scarabæidæ, of which a large number of new species is described. It is illustrated with one plate.

ABOUT thirty years ago a remarkable collection of fossil plants and insects was discovered in beds of shale of the Miocene period at and near Florissant, a small town in Colorado. The plants were described by Lesquereux, and Dr. Scudder published an important monograph on Tertiary insects. Interest in these remains has again been aroused by recent workings, upon which subject Prof. T. D. A. Cockerell contributes an article to the *Popular Science Monthly* (August). The flora included many trees similar to those existing in other parts at the present day, such as Liquidambar, redwoods, and cottonwoods, also an abundance of ferns. Two unique specimens were discovered in the shape of a fungus that has been named *Didymosphaeria betheli*, and a tuft of moss bearing capsules. Some remarkable insects were also unearthed, notably a Glossina, or tsetse-fly, a genus now confined to Africa, also a genus, Halter, known only at the present day in Chile, and two butterflies.

IN their report for 1907–8, the authorities of the Manchester Museum announce the acquisition of a tomb-group of the twelfth dynasty, discovered by Prof. Flinders Petrie at Rifeh, Upper Egypt, and consisting of two painted sarcophagi, with body-coffins and mummies, two boats with sailors, a finely painted canopic chest, of which all the contents are complete, and five statuettes, all being of the best workmanship. Reproductions from photographs of the statuettes and boats accompany the report, which also contains an illustration of a family group of striped hyænas recently added to the exhibition-series.

THE School Nature Study Union has issued a series of leaflets intended for teachers or for use in class. The early numbers are introductory, indicating the facilities offered by museums and gardens—we should have expected the reverse order—in and near London, suggesting schemes for study, and giving a list of useful books. Subsequent publications deal with seeds, bulbs, sun-dials, tree twigs, rocks, insects, and the school aquarium. The note on sun-dials and how to make one, by Miss N. Sweeny, is certain to be useful, and Miss S. E. Isaacson has collated the chief characters of the more prominent insects. Miss K. M. Hall has provided a practical article on the culture of bulbs. The leaflets can be obtained from the secretary of the union, 1 Grosvenor Park, Camberwell.

THE first part of the eighth volume of the *Museums Journal* contains the annual report of the Museums Association. This is in every way satisfactory, the membership showing some increase, while the sale of the journal has also expanded. The presidential address, by Dr. Jonathan Hutchinson, was devoted to the *rôle* of museums from an educational point of view. In this respect simplicity was strongly insisted upon as one of the most necessary factors, while the president likewise dwelt upon the importance of a "space-for-time-method" for exhibition purposes. In the museum at Haslemere, for example, the building devoted to geology is divided into a number of equal-sized compartments, each supposed to represent a period of one million years, and severally devoted to different geological epochs. The idea certainly seems worthy of further development.

IN a recent number of the *Comptes rendus de la Société de Biologie* (vol. lxiv., p. 1004), Messrs. Chatton and Alilaire describe a new species of trypanosome, very similar in appearance to *Trypanosoma dimorphon*, found by them in the Malpighian tubules of *Drosophila confusa*, Stæger, a small fly common in distilleries and breweries feeding on yeasts. In the intestine of the Drosophila the authors also found a Herpetomonas, which they think may represent a stage of the trypanosome. This is the first time that a true trypanosome has been found anywhere but in the blood of a vertebrate or the digestive tract of a blood-sucking invertebrate, though species of the allied genus, Trypanoplasma, are known to occur in the gut as well as in the blood of fishes. It is greatly to be hoped that the authors will follow up their discovery by working out the life-cycle of the trypanosome and its mode of transmission from one host to another.

THE report of the Alexander McGregor Memorial Museum, Kimberley, for the period ended December 31 last has just been received, from which we note that substantial progress has been made in the fitting up and equipment of the institution; also that Miss Wilman, of the South African Museum, has been appointed curator, and that she will take up her duties by the end of February next. The board trusts, "as all other museums in the colony have received, at the least, pound for pound grants in aid of building and furnishing funds, in addition to annual grants for upkeep, that the Government will, as soon as its funds permit, make a substantial grant in aid of the fitting-up of this museum, as well as an increased grant in aid of upkeep, so as to enable the only museum in northern Cape Colony to be organised and administered in a manner worthy its place as an educational institution."

THE dread of premature burial has always been a very real one among some members of the community, so much so that an association for the prevention of premature burial exists. Its physician-in-chief, Mr. Brindley James, has issued a booklet entitled "Death and its Verification" (Messrs. Rebman, Ltd., price 1*s*. net), in which the various tests of death are detailed. They are all simple ones, and some will probably be new to most practitioners.

THE study of the topography and municipal history of Praeneste, contributed to series xxvi. of the Johns Hopkins University papers on historical and political science by Mr. R. Magoffin, opens a collection of geographic-historical memoirs on the cities of the Latin League which promises to be of considerable interest. The position of the city, the modern Palestrina, situated on Mount Glicestro, marks it out as the strategical key of Rome, and its political and religious rival. The study of the remains of the cyclopean walls, with their gates open in the direction of the chief water supply, the reservoirs, the remarkable pair of caves, whence, as tradition tells, when the rock was opened pieces of wood inscribed with ancient characters leaped out, afterwards associated with the curious cult of Fortune Primigenia, and the details of the municipal government, based upon a study of the epigraphical materials, is a good example of the new methods of investigation which are now being applied to the solution of the archæological problems of the ancient Italian cities. Mr. Magoffin promises elsewhere to provide a coloured diagram showing the stages of the city's growth. His review of the many problems connected with the site would have been more readily intelligible if the present memoir had been accompanied by a sketch-map.

THE Commonwealth Bureau of Meteorology, Melbourne, under the superintendence of Mr. H. A. Hunt, has commenced the publication of bulletins dealing with the meteorology of the whole of Australia. No. 1 (issued March) is an excellent general epitome of the climate and meteorology of that continent, by Mr. G. H. Knibbs, reprinted from the year-book of the Commonwealth, and contains the averages and extreme values at the Australian capitals from a long series of observations, illustrated by diagrams showing the annual fluctuation of the various elements. No. 2 (issued July) deals specially with rainfall, and includes a map showing the mean annual values for the decade ending 1906 (an unusually dry period). The map shows that the heaviest rains fall over the northern and eastern parts of Australia; Mr. Hunt states that the most trustworthy, although lighter rains, are experienced over the south-western and south-eastern portions, including Tasmania. These bulletins may be welcomed as an important addition to meteorological literature.

THE annual report of the Royal Alfred Observatory, Mauritius, for 1907 shows that the rainfall for that year, from a mean of sixty-seven stations, was 13 inches below the average. The tracks of four out of eight cyclones which occurred in the Indian Ocean have been plotted. Photographs of the sun were taken daily when the weather permitted, and 300 negatives were sent to the Solar Physics Committee; particulars of fifty-four earthquakes were forwarded to the Seismological Committee of the British Association, and weekly summaries of the weather from May to December were cabled to the director-general of Indian observatories in connection with the monsoon predictions. We regret to learn that the clerical work is falling into arrear, owing to a reduction in the vote for extra assistance, and that from want of funds the observations for 1902 and 1903 are still unprinted. The value of the work of the observatory in connection with international cooperation can hardly be overrated; it is one of the places mentioned in the resolutions of the International Association of Academies at the meeting in May, 1907, and the Meteorological Committee (London), referring to this subject in its last annual report, mentions the observatory as "one of the most important scientific establishments of the southern hemisphere."

WE have received from Messrs. Heynes, Matthew and Co., of Cape Town, a catalogue of scientific apparatus stocked by them. The list includes apparatus for collecting and storing botanical, zoological, and mineralogical specimens, also microscopes, reagents, and instruments required in bacteriology. We notice among the contents wire presses for drying plants, Grubler's stains, Hearson's incubators, and geological outfits for prospectors. It will interest readers in South Africa to know that these can be obtained without sending to Europe.

IN a note in the Transactions of the American Mathematical Society, ix., 2, Prof. J. L. Coolidge discusses the "equilong" transformations of space. In an "equilong" transformation, if any oriented plane is cut by three non-coaxial oriented planes infinitely near thereto in a triangle, this triangle transforms into a triangle equal in all respects to it. The author finds that the most general "equilong" transformation in a Euclidean space of n dimensions depends on the most general conformal transformation of a space of $n-1$ dimensions, and an arbitrary function of the direction parameters. The distance parameter enters linearly. The mathematical proof which is given for three-dimensional space is easy to follow.

AN important essay on logic and the continuum has been contributed to the Bulletin of the American Mathematical Society for June by Prof. E. B. Wilson, of Boston, U.S.A. It deals largely with Zermelo's proposed solution of the problem, first stated by Prof. Georg Cantor in 1883, as to whether every set, and in particular the continuum, can be well ordered. In a postscript the author refers to Schœnflies's report on the same subject. Among Prof. Wilson's conclusions, the view is put forward that the well ordering of any set is of practically no significance, and is quite worthless apart from an algorithm which accomplishes the ordering—an algorithm which shall not require an operation which transcends the cardinal number of the given set. This quotation must be regarded as a mere indication of the general character of the questions discussed in the paper.

THE fact that the salient feature of modern practice is the successful handling of low-grade materials from which the value could not profitably be extracted by older methods is strikingly emphasised in an article on modern developments in the metallurgy of lead and zinc, by Mr. A. Selwyn-Brown, in the *Engineering Magazine* (vol. xxxv., No. 6). Descriptions are given of the Huntington and Heberlein process, the Carmichael-Bradford process, the

Savelsberg process, pot roasting, briquetting fine sulphides, the Dwight and Lloyd sintering process, flotation processes, and the Macquisten process. While these metallurgical inventions deal with base metals, it must not be forgotten that the ores treated almost always contain appreciable quantities of gold and silver, which they will concentrate and save.

A NEAT method of showing the hydrolysis of salts as a chemical lecture experiment is described by Mr. B. L. Vanzetti in the *Gazzetta* (vol. xxxviii., ii., p. 98). An ordinary test-tube is three parts filled with a solution of gelatin coloured with litmus or with phenolphthalein rendered pink by a trace of alkali. A solution of an easily hydrolysed salt, such as ferric chloride, is poured on to the surface of the gelatin after the latter has set. In a short time two zones become visible in the gelatin, one of which, the lower, travelling more quickly through the gelatin, is due to acid, which renders the phenolphthalein colourless; the second zone, at the surface of the gelatin, is coloured by the hydroxide of the base. In the case of ferric chloride this zone is dark brown and opaque, owing to ferric hydroxide being formed. Coloured salts, such as copper sulphate on cobalt nitrate, can also be conveniently used.

FROM the Cambridge University Press Warehouse, Fetter Lane, we have received copies of three forms designed to facilitate the astronomical computations of time, azimuth, and latitude. These forms have been arranged by Messrs. A. R. Hinks and H. K. Shaw, of Trinity College, for use in the Cambridge Geography School, and are somewhat similar to, but more elaborate than, those used for some years past by the students at the Royal College of Science, South Kensington. The first form is for computing time or azimuth from observations of the sun's altitude, and the second for the analogous computation from the altitude of a star, whilst the third is set out for the computation of latitude from circum-meridian observations of sun or star. Such forms are invaluable, especially to those observers who, knowing the general methods, are yet a little hazy as to the details of the computations, for unless one is making and reducing the observations regularly it often occurs that the simplest method of computing is but imperfectly remembered; hence follows loss of time and unnecessary increase of labour; but on these forms every correction, every step in the computation is clearly set out, and it becomes impossible for the observer to forget a correction or to apply a wrong function. In addition to this, each form contains a few useful hints and a diagram to be filled in showing exactly the angles measured. Whilst the forms appear to be otherwise complete, we think it would enhance their value were the entire formula employed inserted, because this would often give the occasional observer a valuable reminder as to the exact form of computation he was employing. The forms are sold in strong envelopes, and the price of each envelope, containing twelve copies of one form, is one shilling net.

MR. THOMAS THORP, of Guildford, has issued a catalogue of the books on botany and gardening, zoology, geology, mathematics and physics, offered by him for sale.

A SUBJECT list of works of reference, biography, bibliography, the auxiliary historical sciences, &c., in the library of the Patent Office has just been published at the Patent Office, 25 Southampton Buildings, W.C.

THE second part of the second French edition of Mr. W. Rouse Ball's "Récréations mathématiques et Problemes des Temps anciens et modernes" has just been published by M. A. Hermann, Paris. The translation follows the fourth English edition, and Mr. J. Fitz-Patrick has added to it some new subjects of interest, among them being parquetry or tiling, the game of dominoes, and constructions for the squaring of the circle.

OUR ASTRONOMICAL COLUMN.

COMET MOREHOUSE, 1908*c*.—Several observations of comet 1908*c* are recorded in No. 4274 of the *Astronomische Nachrichten* (p. 29, September 23). M. Chofardet, observing at Besançon on September 5, describes it as having a round, nebulous head, of ninth magnitude and 2′·5 diameter, without any definite nucleus. A short, indistinct tail was seen projecting from the head in a N.W. direction. On September 6, 7, and 8, Prof. Abetti, at Arcetri, found the comet to have an oblong nebulous appearance without nucleus, its diameter being 2 and its magnitude 9·0.

Herr Ebell continues the ephemeris published by Prof. Kobold in a previous number, and the following is an abstract therefrom:—

Ephemeris 12h. M.T. Berlin.

1908		α (true) h. m.		δ (true) ° ′		log *r*		log Δ		Brightness
Oct. 8	...	19 57·9	...	+61 21·4	...	0·2010	...	0·0154	...	4·8
,, 10	...	19 45·9	...	+57 59·9	...	0·1942	...	0·0100	...	5·0
,, 12	...	19 36·1	...	+54 30·3	...	0·1872	...	0·0062	...	5·3
,, 14	...	19 28·1	...	+50 55·3	...	0·1801	...	0·0043	...	5·5
,, 16	...	19 21·4	...	+47 17·7	...	0·1730	...	0·0041	...	5·7
,, 18	...	19 15·9	...	+43 40·0	...	0·1657	...	0·0058	...	5·9
,, 20	...	19 11·3	...	+40 4·2	...	0·1584	...	0·0090	...	6·0
,, 22	...	19 7·5	.	+36 32·6	...	0·1510	..	0·0139	...	6·1
,, 24	...	19 4·3	...	+33 6·7	...	0·1436	...	c·0201	...	6·0

The apparent positions of the comet among the stars, according to the above ephemeris, are shown approximately on the accompanying chart; it will be noted that the comet passes quite close to the fourth-magnitude star ι Cygni on October 14. According to an observation made

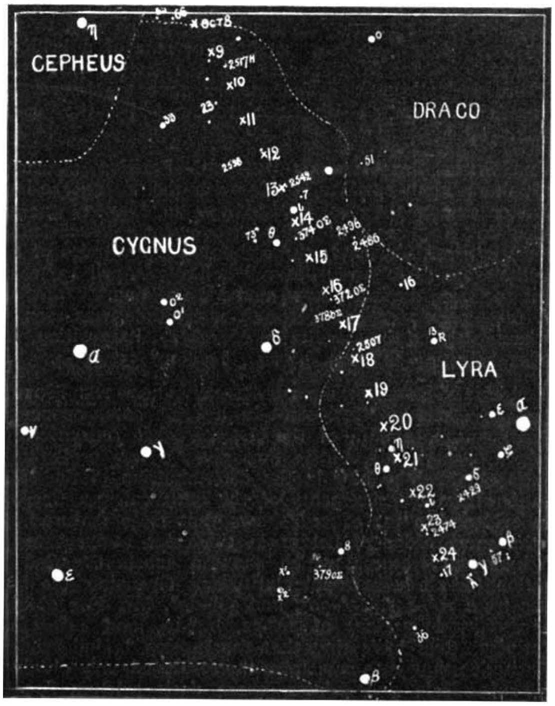

Chart showing apparent path of Morehouse s Comet, October 8-24.